REMARKS

The Specification has been objected to for allegedly failing to include a specific reference to the priority application (U.S. Patent Application Serial No. 09/850,074). Applicant's respectfully submit that a specific reference to U.S. Patent Application Serial No. 09/850,074, as well as the relationship of the instant application to the parent application, has previously been inserted in the specification (See Item 17 of the Utility Patent Application Transmittal form filed on March 29, 2004). Accordingly, withdrawal of this objection is respectfully requested.

Claims 38-41 have been rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite. This rejection is respectfully traversed.

According to the Official Action, the phrase "amplified superquenching" in Claim 38 is allegedly indefinite. Amplified superquenching is a recognized phenomenon which has been described in numerous publications. For example, each of the following publications describe or otherwise refer to the phenomenon of amplified superquenching.

Chen et al., "Highly sensitive biological and chemical sensors based on reversible fluoresence quenching in a conjugated polymer," PNAS, October 26, 1999, vol. 96 no. 22, 12287-12292.

Chen et al., "Surfactant-Induced Modification of Quenching of Conjugated Polymer Fluorescence by Electron Acceptors: Applications for Chemical Sensing," Chem. Phys. Lett. 330 (1-2) (2000) pp. 27-33.

Wang et al., "Photoluminescence of Water-Soluble Conjugated Polymers: Origin of Enhanced Quenching by Charge Transfer," Macromolecules 2000, 33(14): 5153-5158.

Chen et al., "Tuning the Properties of Conjugated Polyelectrolytes through Surfactant Complexation," J. Am. Chem. Soc. 2000, 122, 9302-9303.

Wang et al., "Photoluminescence Quenching of Conjugated Macromolecules by Bipyridinium Derivatives in Aqueous Media: Charge Dependence," Langmuir, 2001, 17(4): 1262-1266.

Jones et al., "Superquenching and Its Applications in J-Aggregated Cyanine Polymers," Langmuir, 2001, 17, 2568-2571.

Jones et al., "Building highly sensitive dye assemblies for biosensing from molecular building blocks," PNAS USA 2001, 98(26): 14769-14772.

Whitten et al., "From Superquenching to Biodetection: Building Sensors Based on Fluorescent Polyelectrolytes" in "Optical Sensors and Switches; Molecular and Supramolecular Photo-chemistry"; Schanze, K. S., Ramamurthy, V., Eds.; Marcel Dekker: New York, Vol. 7, 2001.

Bergstedt et al., "Superquenching of Fluorescent Polyelectrolytes and Applications for Chemical and Biological Sensing," in Organic Photonic Materials and Devices III, Bernard Kippelen, Donal D. C. Bradley, Editors, Proceedings of SPIE Vol. 4279, 94-100 (2001).

Copies of each of these articles have been submitted herewith. As described in the aforementioned references, amplified superquenching refers to a phenomenon exhibited by a specific group of fluorescent materials. This group of materials includes conjugated polyelectrolytes, polyelectrolytes containing pendant chromophores that exhibit a specific property of "J-aggregation", and certain assemblies of smaller molecules that strongly interact and exhibit J-aggregation by virtue of their assembly on a solid support. In each of these systems, a small molecule can quench the fluorescence of a plurality of fluorescers with significant amplification. For example, Stern-Vollmer quenching constants of these systems can be up to ~ 1,000,000 fold greater than those exhibited by conventional fluorophore-quencher interactions.

Moreover, amplified superquenching is the product of two interactions which result in significantly enhanced amplification of quenching. The first interaction is the association of the fluorescer (*e.g.*, a fluorescent polyelectrolyte) and the quencher. The second interaction is an amplification through excitonic delocalization and/or energy migration which occurs through the aggregated ensemble.

As set forth in the MPEP, an applicant may use "functional language . . . or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought". See MPEP §2173.01. Moreover, claim language need only define the patentable subject matter with a *reasonable* degree of particularity and distinctness. See MPEP §2173.02. Since "amplified superquenching" is an art recognized phenomenon, it is respectfully submitted that the use of this phrase in Claim 38 is definite. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Also according to the Official Action, the phrase "associated therewith" in Claim 38 is allegedly indefinite. This rejection is respectfully traversed.

As set forth above, an applicant may employ functional language in a claim which defines the subject matter with a *reasonable* degree of particularity and distinctness. Moreover, Claim 38 recites that the association of the property altering element (*e.g.*, the quencher) with the fluorescent polymer results in "amplified superquenching" of the fluorescent polymer. Fluorescer/quencher associations which produce amplified superquenching are well documented as described in the aforementioned references. Accordingly, it is respectfully submitted that one of ordinary skill in the art would be apprised of the scope of the claim. See See MPEP §2173.02. Reconsideration and withdrawal of this rejection is therefore respectfully requested.

Claims 38-41 have also been rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,355,421 to Coull et al. (hereinafter referred to as "Coull"). This rejection is respectfully traversed.

According to the Official Action, Coull discloses PNA probes comprising a probing segment designed to hybridize to a portion of a target sequence wherein the probing segment comprises a linker and a quencher (pg. 4 of the Official Action). The Official Action has pointed to no teaching or suggestion in Coull, however, of a compound as set forth in Claim 38 comprising a "property-altering element capable of amplified superquenching of a fluorescent polymer when associated therewith". The Official Action appears to acknowledge this deficiency in Coull. Moreover, the Official Action states that Coull "disclose all the elements of the recited compound and applicant has not recited any structural differences" (pg. 4 of the Official Action). As set forth above, however, an applicant may use "functional language . . . or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought". See MPEP §2173.01. In addition, as also set forth above, "amplified superquenching" is a recognized phenomenon which has been described in numerous publications. It is well established that a claim is anticipated only if *each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. See MPEP §2131. Since the Official Action has pointed to no teaching or suggestion in Coull of a compound as set forth in Claim 38 comprising a "property-altering element capable of amplified superquenching of a fluorescent polymer when associated therewith", it is respectfully submitted that Coull does not anticipate Claim 38.

Claims 39-41 depend from Claim 38 and are therefore also not anticipated by Coull for at least the reasons set forth above with respect to Claim 38. Claims 40 and 41 can be further distinguished from Coull. Claims 40 and 41 recite "a fluorescent polymer". In order to address

this limitation, the Official Action is apparently relying upon the disclosure in Coull of Cy3 dye (pg. 4 of the Official Action). It is respectfully submitted that Cy3 is not a "polymer" as that term would be understood by one of ordinary skill in the art. Moreover, a polymer is a large molecule *built up by the repetition of small, simple chemical units* (*i.e.*, repeat units). See, for example, Billmeyer, Jr., "Textbook of Polymer Science", 3rd Edition, 1984, pp. 3-4, a copy of which is submitted herewith). Accordingly, Claims 40 and 41 can be further distinguished from Coull.

For at least the aforementioned reasons, reconsideration and withdrawal of this rejection is therefore respectfully requested.

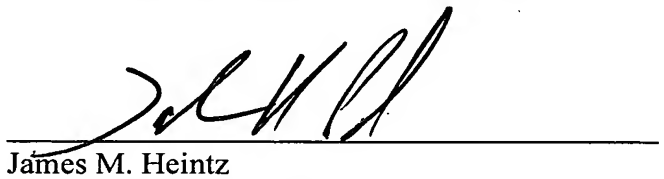
Claims 38-41 have been rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over Claims 1-18 of U.S. Patent No. 6,743,640. Submitted herewith is a terminal disclaimer over U.S. Patent No. 6,743,640. As set forth in the Official Action, a timely filed terminal disclaimer may be used to overcome a non-statutory double patenting rejection (page 5, numbered paragraph 6 of the Official Action). A terminal disclaimer is being submitted herewith. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicants submit that the application is now in condition for examination on the merits. Early notification of such action is earnestly solicited. If any issues remain which the Examiner feels may be best resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact Applicants' counsel, John K. Pike, Ph.D. at (202) 861-6879.

Respectfully submitted,

DLA PIPER RUDNICK GRAY CARY U.S. LLP



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